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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,295	12/15/2003	Barthelemy Fondeur	78297 P1680US	3793

27975 7590 10/04/2006

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EXAMINER

ROSASCO, STEPHEN D

ART UNIT PAPER NUMBER

1756

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,295

Applicant(s)

FONDEUR ET AL.

Examiner

Stephen Rosasco

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1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 9-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/15/03</u> | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Applicant's election with traverse of Group I (claims 1-8) in the reply filed on 8/16/06 is acknowledged, claim 35 was added with this amendment and will be considered part of Group II as applicant has suggested.

The traversal is on the ground(s) that contrary to what is alleged in the outstanding Office Action, it is respectfully submitted that inventions I, II, and III are not mutually exclusive, since the process defined in claim 9 (i.e., invention II), employs the mask set of claim 1 (invention I) and produces the planar circuit of claim 19 (invention III).

This is not found persuasive because Group I (claims 1-8) is to a mask set, where the masks are to work as part of a set but with no specific limitations as to the patterns on the masks.

Group II (claims 9-18 and 35) is to a method of making a planar circuit using the mask set of Group I. However, the method claims recite limitations that are not present in the mask set claims; e.g., in independent claim 9, there is the limitation of "determining an optimized planar circuit in dependence upon the analysis". The analysis limitation is not present in the claims of the mask set.

Group III (claims 19-34) are product by process claims, which are treated initially strictly as a product for examination purposes.

The requirement is still deemed proper and is therefore made FINAL.

Figures

Figure 1 should be designated by a legend such as “Prior Art” because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Roberts (6,517,997).

Roberts teaches a method of manufacturing an integrated optical device on a substrate is described wherein the device comprises first and second areas each containing at least one optical component. The first and second areas are separated by a third relatively featureless area, which provides optical communication between the first and second areas. The method uses a photolithographic stepper to define features of the optical

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components in the first area within a first exposure field and the features of the optical component(s) in the second area within a second exposure field, the stepper being moved between exposures so that first and second exposure fields are contiguous, and a line of contact or area of overlap between the first and second fields lies within the third, relatively featureless area of the substrate. The method may be used to form an arrayed waveguide grating with input waveguides within a first field, an array of curved waveguides in a second field and output waveguides in a third field, the fields overlapping in relatively featureless areas between the respective waveguide components.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (6,517,997) in view of Fritze et al. (6,818,389) or Liu (7,082,596).

The claimed invention is directed to a photolithographic mask set comprising: a master mask including a first pattern having features for forming part of a planar circuit, the first pattern including a featureless region disposed therein such that the planar circuit is incomplete; and, a slave mask including a second pattern having features for completing the planar circuit.

And wherein the second pattern is designed to correct systematic errors induced by the master mask.

And the second pattern has been experimentally optimized using a plurality of other slave masks.

Roberts teaches a method of manufacturing an integrated optical device on a substrate is described wherein the device comprises first and second areas each containing at least one optical component. The first and second areas are separated by a third relatively featureless area, which provides optical communication between the first and second areas. The method uses a photolithographic stepper to define features of the optical components in the first area within a first exposure field and the features of the optical component(s) in the second area within a second exposure field, the stepper being moved between exposures so that first and second exposure fields are contiguous, and a line of contact or area of overlap between the first and second fields lies within the third, relatively featureless area of the substrate. The method may be used to form an arrayed waveguide grating with input waveguides within a first field, an array of curved waveguides in a second field and output waveguides in a third field, the fields overlapping in relatively featureless areas between the respective waveguide components.

The teachings of Roberts differ from those of the applicant in that the applicant teaches that the second pattern is designed to correct systematic errors induced by the master mask.

Fritze et al. teach (see claims) a mask set for a process for providing patterns on a substrate comprising: a fine feature mask containing a pattern of dense features; a trim mask for producing multiple trimmed patterns of fine features; and an additional mask or

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set of masks to provide additional features on a same lithography level as said dense features wherein the imaging of the additional features being substantially independent of the previous exposures and the imaging of the additional features provide a geometric union operation.

Liu teaches (see claims) a set of masks for use in a semiconductor fabrication process, wherein masks in the set of masks are created through a process that uses simulation results to select evaluation points for performing a model-based optical proximity correction (OPC) operation on the layout, comprising: selecting critical segments in the layout; performing a dense simulation on a given segment of the critical segments, wherein the dense simulation determines deviations between a desired layout and a simulated layout at multiple evaluation points on the given segment; for each critical segment, selecting an evaluation point from the multiple evaluation points on the critical segment based on results of the dense simulation; and performing a model-based OPC operation using the selected evaluation point for each critical segment.

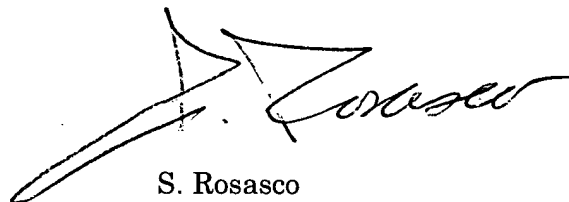
Roberts teaches the use of a mask set to work together to make planar circuit devices and Fritze and Liu teach adjusting the pattern of the second mask in a set, therefore it, would have been obvious to one having ordinary skill in the art to take the teachings of Roberts and combine them with the teachings of Fritze et al. or Liu in order to make the claimed invention because it would have been obvious to adjust the second mask pattern so that there is a resulting finished pattern that meets the design specifications which would included any corrections created by the first mask pattern.

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Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Rosasco whose telephone number is (571) 272-1389. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'S. Rosasco', with a stylized, sweeping flourish extending from the end of the name.

S. Rosasco
Primary Examiner
Art Unit 1756

S. Rosasco
09/06/06